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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,885	07/10/2008	Yasuhiro Sakaguchi	062771	7627

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EXAMINER	
YEE, DEBORAH	

ART UNIT	PAPER NUMBER
1733	

NOTIFICATION DATE	DELIVERY MODE
11/17/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

Office Action Summary	Application No.	Applicant(s)	
	10/585,885	SAKAGUCHI ET AL.	
	Examiner	Art Unit	
	Deborah Yee	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/3/07;10/11/06;7/12/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 to 5, 7 and 9 to 12 are rejected under 35 U.S.C. 102 (b) as being anticipated by European patent 530725 to Kato et al. (hereafter "Kato") cited by Applicants in IDS filed October 3, 2007.

3. Kato discloses austenitic stainless steel Nos. 1, 2 and 6 in table 1 on page 5 and steel No. 11 in table 2 on page 7 that meet the composition in claims 1 to 3 and provisos in claims 4 and 5 of present application.

4. For example, steel No. 1 contains 0.003%C - 0.01% Si-1.65%Mn- 0.002%P-0.003%S-13.9%Ni-17.7%Cr-2.2%Mo-0.017%Al-0.002%N-0.0131%O- Fe balance; and when calculated satisfies the claimed provisos as follows:

Cr Equivalent = 17.7 + 2.2 + (1.5 x 0.01) + (0.5 x 0) = 19.9

Ni Equivalent= 13.9 + (30 x 0.003) + (30 x 0.002) + (0.5 x 1.65) = 14.875

Cr equivalent – Ni equivalent = 19.9-14.875 = 5.025 within -5 to +7 of claim 4

Cr equivalent/Ni equivalent = 19.9/14.875 = 1.34 within 0.7 to 1.4 of claim 5

Note Cr and Ni equivalent equations are disclosed in paragraph [0013] of instant specification.

5. Although prior art does not teach compositional formulas recited by instant claims, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357,553 O.G. 177., 57 USPQ 1 17, Taklatwalla v. Marburg, 620 O.G. 685, 1949 C.D. 77, and In re Pilling, 403 O.G. 513, 44 F (2) 878, 1931 C.D. 75.

6. Also in last paragraph on page 5 of Kato, steel is subjected to solution heat treatment at 1050˚C, and therefore meets solution heat treatment at a temperature of 1000˚C to 1150˚C set forth by instant claim 7.

7. Moreover, on lines 1-5 on page 2 of Kato, steel is use to make structural components for nuclear power plants of light-water reactors, and therefore meets structural limitation set forth by instant claims 9 to 12.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1 to 6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3,563,728 to Allio et al. (hereafter “Allio”).

10. Allio in claim 2 of columns 5-6 teach an austenitic stainless steel alloy composition having constituents whose wt% ranges overlap those recited by claims 1 to 3 as shown in table below; and such overlap in alloy wt% ranges establishes a prima facie case of obviousness because it would be obvious for one skilled in the art to select

the claimed alloy wt% ranges over the broader disclosure of the prior art since the prior art teaches the same utility as the present invention to make structural components for a light-water nuclear reactor, see MPEP 2144.05 (I).

Element	Instant Claims 1-3 (mass percent)	Allio (mass percent)	Overlap (mass percent)
C	0-0.03	0.007-0.015	0.007-0.015
Si	0-0.10	0-0.5	0-0.10
Mn	0-2.0	0-1.5	0-1.5
P	0-0.03	0-0.05	0-0.03
S	0-0.002	0-0.05	0-0.002
Ni	11-26	17-22	17-22
Cr	17-30	14-19	17-19
Mo	0-3.0	0-0.05	0-0.05
N	0-0.01	0-0.015	0-0.01
Ca	0-0.001	-	0
Mg	0-0.001	-	0
O	0-0.004	-	0
Zr,B,Hf	0-0.01	-	0
Fe	balance	balance	balance

11. In regard to claims 2 and 3, prior art steel does not contain Ca, Mg, O, Zr, B and Hf and therefore are either absent or at an impurity level, and within instant claimed wt% ranges having a lower limit of zero and an upper limit of at most 0.01%.

12. More specifically, Allio discloses example in table 1 of column 3 comprising 16.55%Cr-20.55%Ni-0.009%C-0.009%N-0.007%Mn-0.06%Si-0.004%P-0.002%S-0.04%Mo-0.0008%Ti-Fe balance that meets the claimed composition except for 16.55% Cr outside the claimed Cr range of 17 to 30%. Nonetheless, it would well within the skill of the artisan to modify prior art example by raising the concentration of Cr to 17% since a broad Cr range of 14-19% is taught in the general composition. Also when calculated,

prior art example meets the claimed provisos set forth by instant claims 4 to 6 as follows:

Cr Equivalent = 16.55 + (1.37 x 0.04) + (1.5 x 0.06) + (3 x 0.0008) + (2 x 0) = 16.7

Ni Equivalent= 20.55 + (30 x 0.009) + (30 x 0.009) + (0.5 x 0.007) = 21.1

Cr equivalent – Ni equivalent = 16.7 – 21.1 = -4.4 within -5 to +7 of claim 4

Cr equivalent/Ni equivalent = 16.7 / 21.1 = 0.79 within 0.7 to 1.4 of claim 5

SFE = 25.7+ (6.2 x 20.55) + (410 x 0.009) – (0.9 x 16.55) – (77 x 0.009) – (13 x 0.06) – (1.2 x 0.007) = 140 within claimed range of ≥ 100.

Note Cr and Ni equivalent equations are disclosed in paragraph [0013] of instant specification.

13. Although prior art does not teach compositional formulas recited by instant claims, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357,553 O.G. 177., 57 USPQ 1 17, Taklatwalla v. Marburg, 620 O.G. 685, 1949 C.D. 77, and In re Pilling, 403 O.G. 513, 44 F (2) 878, 1931 C.D. 75.

14. Also in abstract of Allio, steel is use for structural components for light-water nuclear reactor, and therefore meets structural limitation of instant claims 9 to 14.

15. Claims 1 to 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 789089 to Yonezawa et al. (hereafter “Yonezawa”) in view of US Patent 3,563,728 to Allio et al. (hereafter “Allio”).

16. Yonezawa in claim 2 on page 12 teaches an austenitic stainless steel alloy composition having constituents whose wt% ranges overlap those recited by the claims 1 to 3 as shown in table below; and such overlap in alloy wt% ranges establishes a

prima facie case of obviousness because it would be obvious for one skilled in the art to select the claimed alloy wt% ranges over the broader disclosure of the prior art since the prior art teaches the same utility as the present invention to make structural components for a nuclear reactor, see MPEP 2144.05 (I).

Element	**Instant Claims 1-3 (mass percent)**	Yonezawa **(mass percent)**	**Overlap (mass percent)**
C	0-0.03	0.005-0.08	0.005-0.08
Si P S Si+P+S	0-0.10 0-0.03 0-0.002 0-0.132	Si+P+S =0-0.20	0-0.132
Mn	0-2.0	0-0.30	0-0.3
Ni	11-26	25-40	25-26
Cr	25-40	17-30	25-30
Mo	0-3.0	0-3.0	0-3.0
N	0-0.01	-	0
Ca	0-0.001	-	0
Mg	0-0.001	-	0
O	0-0.004	-	0
Zr,B,Hf	0-0.01	B: 0-0.001	B:0-0.001
Fe	balance	balance	balance

17. In regard to claims 2 and 3, prior art steel does not contain N Ca, Mg, O, Zr, B and Hf and therefore are either absent or at an impurity level, and within the instant claimed wt% ranges having a lower limit of zero and an upper limit of at most 0.01%.

18. Moreover, Allio having an analogous austenitic stainless steel composition and utility to Yonezawa on lines 45-48 of column 3 teaches restricting N to no more than 0.015% because excessive amounts adversely affects stress corrosion resistance. Since stress corrosion resistance is sought by Yonezawa then it would be an obvious modification well within the skill of the artisan to keep N as low as possible in view of the secondary teaching of Allio to produce no new and unexpected results. Note present

invention restricts N for the same reason as prior art to improve stress corrosion resistance.

19. Furthermore Yonezawa discloses specific examples A1-A3 in table 1 and specific examples B1-B3 in table 3 that meet the claimed composition except for 30-31% Ni and the absence of N. Nonetheless, it would obvious for one skilled in the art to modify prior art examples by reducing Ni concentration to 25% since a broad Ni range of 25 to 40% is taught in the general composition. In regard to N, it is present as an impurity and would obviously be kept as low as possible for the reasons set forth above in paragraph 18. Moreover when calculated, examples meet the provisos set forth in claims 4 to 6.

20. For instance, steel example A3 in table 1 comprises 0.03%C - 0.09%Si-0.08%Mn- 0.001%P-0.002%S-30%Ni-29%Cr-1.4%Mo-0.17 Nb+Ta- 0.10%Ti-0.0005%B-Fe balance with N presumed to be 0.01%; and when calculated, satisfies the claimed provisos as follows:

Cr Equivalent = 29 + (1.37 x 1.4) + (1.5 x 0.09) + (3 x 0.1) + (2 x 0.17) = 31.7

Ni Equivalent= 30 + (30 x 0.03) + (30 x 0.01) + (0.5 x 0.08) = 31.24

Cr equivalent – Ni equivalent = 31.7 - 31.24 = 0.46 within -5 to +7 of claim 4

Cr equivalent/Ni equivalent = 31.7/31.24 = 1.015 within 0.7 to 1.4 of claim 5

Note Cr and Ni equivalent equations are disclosed in paragraph [0013] of instant specification.

SFE = 25.7 + (6.2 x 30) + (410 x 0.03) - (0.9 x 29) – (77 x 0.01) – (13 x 0.09) – (1.2 x 0.08) = 195.864 within ≥ 100 of claim 6.

21. Although prior art does not teach compositional equations recited by instant claims, it is well settled that there is no invention in the discovery of a general formula if

it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357,553 O.G. 177., 57 USPQ 1 17, Taklatwalla v. Marburg, 620 O.G. 685, 1949 C.D. 77, and In re Pilling, 403 O.G. 513, 44 F (2) 878, 1931 C.D. 75.

22. In addition, steel example A3 of Kato in last paragraph on page 5 is subjected to solution heat treatment at 1050˚C followed by cold working at about 20% reduction and aging at 700˚C for 10 hours or aging at 700˚C for 100 hours cold which meets the process limitations set forth by instant claims 7and 8.

23. Also according to paragraph bridging pages 11 to 12 of Yonezawa, steel is use for structural components for light-water nuclear reactor, and therefore meets structural limitations set forth by instant claims 9 to 14.

24. For the foregoing reasons, claims would not patentably distinguish over prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/
Primary Examiner
Art Unit 1733

/DY/